

Middle Atlantic states.—Freehold, New Jersey, 14th; Wytheville, Virginia, 12th, 14th, 17th, 23d; Johnstown, Virginia, 15th; Barnegat City, New Jersey, 17th; Albany, New York, 16th; Delaware Breakwater, Delaware, 17th; Philadelphia, Pennsylvania, 17th, 20th, 21st, 22d; West Washington, District of Columbia, 17th; Woodstock, Maryland, 17th, 19th; Lynchburg, Virginia, 20th.

South Atlantic states.—Hatteras, North Carolina, 4th; Jacksonville, Florida, 20th.

Florida peninsula.—Sanford, 11th, 12th, 13th; Limona, 14th, 15th; Key West, 15th.

Eastern Gulf.—New Orleans, Louisiana, 10th, 11th.

Western Gulf.—Galveston, Texas, 8th to 11th; Lead Hill, Arkansas, 10th; Fort Smith, Arkansas, 16th; Indianola, Texas, 15th to 18th, 20th; Little Rock, Arkansas, 17th, 25th; Point Pleasant, Louisiana, 18th.

Tennessee.—Murfreesborough, 14th; Memphis, 25th.

Ohio valley.—Vevay, Indiana, 10th, 19th, 20th.

Lower lakes.—Buffalo, New York, 16th; North Volney, New York, 21st.

Upper lakes.—Grand Haven, Michigan, 12th, 13th; Port Huron, Michigan, 13th; Lansing, Michigan, 12th, 20th; Manitowoc, Wisconsin, 14th; Swartz Creek, Michigan, 15th; Northport, Michigan, 15th; Chicago, Illinois, 16th; Milwaukee, Wisconsin, 18th; Marquette, Michigan, 20th.

Extreme northwest.—Bismarck, Dakota, 15th.

Upper Mississippi valley.—Anna, Illinois, 10th; Cairo, Illinois, 10th, 11th; Dubuque, Iowa, 13th, 14th, 15th; Davenport, Iowa, 14th; Madison, Wisconsin, 14th; Keokuk, Iowa, 15th; Saint Louis, Missouri, 13th, 24th.

Missouri valley.—Fort Scott, Kansas, 15th; De Soto, Nebraska, 15th.

Middle slope.—Dodge City, Kansas, 12th; Fort Supply, Indian Territory, 17th.

Southern slope.—Fort Concho, Texas, 14th; Fort Stockton, Texas, 15th, 18th, 19th, 20th, 21st.

Northern plateau.—Lewiston, Idaho, 14th.

MIRAGE.

Northport, Michigan.—From 3 to 4:30 p. m., of the 23d, a forest twelve miles northeast of this place appeared to be about one hundred feet above the horizon.

Mirage was also observed at Indianola, Texas, on the 2d, 18th, 20th, and 28th.

MISCELLANEOUS PHENOMENA.

SUN SPOTS.

Sun spots were observed by Mr. William Dawson at Spice-land, Indiana, as follows:

1st.—Three groups; one hundred spots; two large spots close together near the centre of the sun were easily seen without telescope.

3d.—Four groups; seventy spots; the large spots still seen without telescope.

5th.—Two groups; forty spots; same number of groups and spots were also seen on the 7th and 9th, but on the latter date one large group had disappeared by rotation and a new and very prominent group appeared at the edge of the sun.

13th.—Seven groups; sixty spots; mostly in the eastern hemisphere, power 50 (generally use power of 100).

16th.—Eight groups; ninety spots; large group near the east edge.

17th.—Eight groups; one hundred and ten (?) spots; some cloud; a nearly straight row of groups extends across the sun's disc.

19th.—Ten groups; one hundred and sixty-five spots; very large group slightly east of the centre.

21st.—Seven groups; one hundred and eighty-five spots; one group of fifty spots near the east edge, and another group southwest of the centre with nearly as many spots.

24th.—Eight groups; two hundred and thirty spots (largest number observed for about eight years); one group in southeast quadrant had one hundred and thirty spots; three or four of them near together in one penumbra about 50,000 miles

diameter, and plainly visible to the unassisted eye. This would seem to be the current maximum, although it was thought to have occurred in April, 1882.

25th.—The large spot has changed considerably.

27th.—Six groups; one hundred and ten (?) spots.

28th.—Six groups; fifty-six spots. The great penumbra and spots were much broken on this date, although they were plainly seen with a shade glass only.

29th.—Three groups; thirty-five spots. The large spot was near the west edge, and scarcely visible to the naked eye.

31st.—Five groups; fifty-two spots. On this date the large group had disappeared by rotation and a new group of twenty-four spots appeared in the southeast quadrant.

Roseburg, Oregon.—A small black spot was visible on the sun's disc on the 29th. It was still visible on the 30th, but had diminished in size.

Fort Wayne, Indiana.—Sun spots were seen at this place on the 1st, with the unassisted eye.

Carson City, Nevada.—Two large spots were observed near the centre of the sun's disc at noon of the 1st.

The s. s. "Donau," near N. 43° 14', W. 57° 39', on the 27th, saw a dark spot near the centre of the sun; it moved westward, and on the 28th was seen near the west edge of the sun.

The s. s. "Llandaff City," from New York to Bristol, observed, on the 17th, a very large spot on the sun; it was also seen on several days afterwards, altering its position each day.

Albany, Oregon, 31st.—The smoky state of the atmosphere, caused by the continued forest fires, afforded favorable opportunity for observing the sun spots with the naked eye. The spots were very distinct, as much so as the recent "transit of Venus," which they very much resembled.

The following record of sun spots for the month of July 1883, has been forwarded by Professor D. P. Todd, Director of the Lawrence Observatory, Amherst, Massachusetts:

Date— July, 1883.	No. of new		Disappeared by solar rotation.		Reappeared by solar rotation.		Total No. visible.		Remarks.
	Gr'ps	Spots	Gr'ps	Spots	Gr'ps	Spots	Gr'ps	Spots	
1, 7 a. m.	0	0	1	5	0	0	3	40†	Two of spots quite large.
1, 4 p. m.	0	0	0	0	0	0	3	40†	
2, 7 a. m.	0	0	0	5	0	0	3	35†	Spots probably disappeared by solar rotation.
3, 7 a. m.	1	10†	0	0	1	5	4	45†	
5, 7 a. m.	0	5	2	20†	0	5	2	30†	
6, 8 a. m.	0	10	0	10	0	10	2	30†	Many of the spots small. Do. Do. Do. Do. Do. Do.
6, 6 p. m.	0	5	0	5	0	5	2	30†	
7, 7 a. m.	0	5	0	3	0	0	2	30†	
8, 6 a. m.	0	0	1	7	0	0	1	23	
9, 6 p. m.	1	5	0	3	1	5	2	25†	
10, 8 a. m.	1	5	0	0	0	0	3	30†	
10, 5 p. m.	1	10†	0	0	1	6	4	40†	
11, 7 a. m.	0	10	0	0	0	0	4	50†	
12, 8 a. m.	2	20†	0	5	1	2	6	65†	
13, 7 p. m.	0	0	0	15†	0	0	6	50†	
14, 12 m.	0	0	0	5	0	0	6	35†	Also many veiled spots and broad areas of faculae. Broad areas of faculae. Faculae quite numerous.
16, 2 p. m.	2	15†	1	5	2	15†	7	45†	
17, 3 p. m.	2	10†	0	0	1	7	9	55†	
18, 9 a. m.	0	10†	1	2	0	10†	7	60†	
19, 10 a. m.	2	15†	0	0	1	5	9	75†	
20, 10 a. m.	1	15†	2	5	1	3	8	85†	
21, 9 a. m.	0	0	1	5	0	0	7	80†	
22, 1 p. m.	1	2	0	5	1	2	8	75†	
23, 6 p. m.	0	0	0	5	0	0	8	70†	
24, 9 a. m.	0	0	1	2	0	0	6	60†	
25, 4 p. m.	0	0	0	0	0	0	6	60†	Faculae were seen at the time of every observation. †Approximated.
26, 6 a. m.	0	0	0	0	0	0	6	60†	
26, 6 p. m.	0	0	0	5	0	0	6	55†	
27, 7 a. m.	0	0	0	10†	0	0	5	40†	
28, 6 a. m.	0	10†	1	5	0	0	4	45†	
29, 8 a. m.	0	0	1	5	0	0	3	40†	
29, 4 p. m.	1	5	0	0	0	0	4	45†	
30, 7 a. m.	1	10†	0	5	0	0	5	50†	
31, 8 a. m.	0	15†	0	10†	0	0	5	55†	

Faculae were seen at the time of every observation. †Approximated.

SUNSETS.

The characteristics of the sky, as indicative of fair or foul weather for the succeeding twenty-four hours, have been observed at all Signal-Service stations. Reports from one hundred and forty-four stations show 4,382 observations to have been made, of which eight were reported doubtful; of the remainder, 4,374, there were 3,607, or 82.2 per cent., followed by the expected weather.

METEORS.

A brilliant meteor fell at Lachine, Province of Quebec, on July 7th, during a rain shower in the forenoon. It is reported to have resembled a huge mass of fire descending towards the earth in a diagonal direction. It had a nucleus that appeared about four feet square, and its flight through the air caused a strange indescribable noise. Before and during the shower there was nothing to indicate that the air was unusually charged with electricity. It is thought that this aerolite fell into a stream near Stony Point.

Sloop Point, North Carolina.—A brilliant meteor, surrounded by a yellowish halo, and passing in a northeast direction was seen at this place at 9:10 p. m. of the 7th.

Portland, Maine.—At 11:50 p. m. of the 11th, a meteor, apparently about the size of an ordinary foot-ball, appeared above the north-northwestern horizon, and followed the course of a band of auroral light which extended from the horizon to the zenith. The meteor passed with remarkable slowness, and was of an intensely whitish color, throwing off a train of light bright red sparks. It passed directly overhead, and seemed to be not more than three hundred feet above the earth. When about 20° above south-southeastern horizon it disappeared, leaving a few sparks which slowly floated away. No cloud was observed, nor was any explosion heard. This meteor was also observed at Bath, Maine; Montreal, Canada; and at many other points east and north of Portland.

Bath, Maine.—Just before midnight of the 11th, a meteor was seen moving over this place from northwest to southeast, shedding a pale yellowish light, but leaving no trail. After disappearing, a faint rumbling sound was heard resembling an explosion.

Indianapolis, Indiana.—A brilliant meteor was seen in this city, just before midnight of the 11th, producing a light sufficient to cast shadows.

Quebec, Province of Quebec.—A brilliant meteor of immense size was seen to fall slowly over the southeastern sky shortly after midnight of 11-12th, leaving behind it a train of bluish light.

Cairo, Illinois.—At 7:50 p. m., of the 20th, a bright meteor of light blue color was seen to pass from a point 20° south of the zenith toward the northern horizon, disappearing when at an altitude of about 15°. Its apparent size was about one-half of that of the full moon; it left a train of light 15° in length.

Nashville, Tennessee.—A bright meteor was observed at 10:35 p. m. of the 26th. It started from a point 15° east of "Polaris" and disappeared when about 10° above the horizon, leaving a track of bright red.

Menand Station, (near Albany) New York.—At 9:30 p. m., of the 29th, a meteor was observed at an altitude of about 45°, and before disappearing in burst into many brilliant fragments.

Meteors of less brilliancy are reported to have been seen during the month, as follows:

- 2d.—Davenport, Iowa.
- 8th.—Nebraska City, Nebraska.
- 9th.—Saint Vincent, Minnesota.
- 22d.—Lead Hill, Arkansas; Davenport, Iowa.
- 23d.—Memphis, Tennessee.
- 24th.—Little Rock, Arkansas; Indianola, Iowa; Woodstock, Maryland; Memphis, Tennessee.
- 25th.—West Washington, District of Columbia; Griffin Station, Indiana; Woodstock, Vermont; Wytheville, Virginia; Davenport, Iowa; Memphis, Tennessee; Rowe, Massachusetts.
- 26th.—Marion, Virginia; Bristol, New Hampshire; Little Rock, Arkansas.
- 27th.—Davenport, Iowa.
- 28th.—Morrison, Illinois; Fort Scott, Kansas.
- 29th.—Woodstock, Maryland; Chambersburg, Pennsylvania; Davenport, Iowa.
- 30th.—Moorestown, New Jersey; Woodstock, Maryland; Davenport, Iowa.
- 31st.—Moorestown, New Jersey.

EARTHQUAKES.

Carson City, Nevada.—A slight shock of earthquake occurred at this place at 3 a. m. of the 1st.

Cairo, Illinois.—A light earthquake shock was felt here at 11.15 a. m., of the 6th, lasting about five seconds. On the 14th, at 1.30 a. m., a light shock occurred, lasting eight seconds. The wave was from west to east.

Los Angeles, California.—At 10.50 p. m., of the 7th, an earthquake shock was felt at this place. The tremor of the building in which the signal office is located was very perceptible. Owing to the very short duration of the shock, the direction of its vibration was not determined.

The town of Casamicciola, on the island of Ischia, near Naples, Italy, was almost entirely destroyed by an earthquake on the night of July 28th. The shocks began at 9.30 p. m. The first indication of the disturbance was a low rumbling, which presently burst into a deafening roar, as though heavy artillery were being continuously fired in the immediate vicinity. For a second or two the houses rocked to and fro, and then were shattered into fragments. A few of the inmates reached the open air before the crash came, but the vast majority were buried in the falling ruins. For fifteen seconds there were upheavals of the earth in all directions, and many of the inhabitants, flying toward the shore, were buried beneath the overwhelming quantities of debris. All the lights were extinguished, and to add to the horror of the situation, a dense cloud of dust, blinding and suffocating the survivors, hung over the ruins, and tottering houses continued to fall on the people who were seeking shelter from the general ruin. The site of the town is hilly, and the houses have been thrown on one another; at short distances apart are deep cracks in the ground. There is not a single building left standing at Casamicciola, except three cottages and a little church, the latter having been unroofed. At Lacco Ameno, the condition of affairs was, if anything, worse than at Casamicciola. Not a single building can be traced out of the mass of timber and stones which now marks where the village once stood. The inhabitants of the village numbered 1,593, but of that number only five persons are known to have escaped destruction. Some of the houses have disappeared bodily, apparently falling into the fissures when the earth opened. At Fario, the damage, though not so extensive, is very great. The earthquake appears to have run across the island from west to east, and, besides the above-mentioned towns, all the adjacent villages and hamlets have suffered more or less. The first and most fatal shock was accompanied by a noise resembling loud thunder; the succeeding shocks were less clearly marked, but they served to extend the devastation and to complete the panic that had set in throughout the island. The previous weather had been splendid, but a violent storm occurred on the day following the disaster, and this, accompanied by an almost total darkness, added greatly to the horror of the scene, and rendered transit from the island to the main land very difficult. It is pointed out as significant that Vesuvius had been unusually active just before the shock.

The following notes, relating to earthquakes occurring in America, have been collected and forwarded by Professor C. G. Rockwood, jr., of Princeton, New Jersey:

Panama, United States of Columbia.—On July 7th, at midnight, and at 2 a. m., of the 9th, sharp shocks of earthquake were felt at San Salvador.

At 4.48 p. m., of July 20th, a severe earthquake shock was felt at Panama. Its direction was from west to east.

The Ometepe volcano, in Nicaragua, continues in eruption, and all the inhabitants of the town of that name have emigrated to the mainland.

Wickliffe, Ballard county, Kentucky.—The earthquake shock which occurred at Cairo, Illinois, on the 14th, was also felt at this place, breaking some of the window-glass in the court house.

San Francisco, California.—Reports from Gilroy, California, state that two shocks of earthquake were felt at that place on the evening of the 30th.

Valparaiso, Chili.—A sharp shock of earthquake was felt here at 2.55 a. m., of June 23d; and on June 21st and 23d. Several shocks were experienced at Los Andes, Chili.

DROUGHT.

Arkansas.—Fort Smith, 4th: cotton and corn are suffering from drought in this part of the state.

Little Rock, 23d: the weather continues very hot and dry, and crops are suffering in consequence, especially in the western part of this state.

Dakota.—Jamestown, Stutsman county: there was a fine rain throughout the James river valley on the 13th. The crops were injured by the previous drought, but the rain of this date will insure a fair yield of wheat.

Bismarek, 11th: but little rain had fallen in this immediate vicinity since June 23d, and the crops were suffering seriously for rain. On this date a slight shower of rain fell at this place. Heavy rain fell a few miles north, and refreshing showers are reported from points southward.

Georgia.—The following extract is taken from the July crop report for the state of Georgia:

In the southern half of the state the seasons were fair during the month of June, even too much rain in some places, but generally sufficient to maintain a healthy growth and development up to the 1st of July. In northern and middle Georgia, however, the drought has been almost continuous since April 23d,—the date of the last general rain in the state—broken only by light and ineffective showers at considerable intervals. A few points reported sufficient rain, but the northern half of the state, with these exceptions, has suffered a most prolonged drought, which is yet unrelieved.

Kansas.—Yates Centre, Woodson county: the first three weeks of July were very dry, and the crops in this locality suffered from the effects of drought.

Manhattan, Riley county: from the 19th to the 22d very warm and dry south-southwest winds prevailed, which proved very injurious to crops; but fine rains fell on the 26th.

Mississippi.—Vicksburg, 31st: corn and vegetables suffered serious injury during the latter part of the month, in consequence of drought.

Minnesota.—Moorhead, 9th: the crops in this part of the state are suffering for rain.

Montana.—Fort Assiniboine, 11th: the weather in this part of the territory is very dry, and crops are suffering from the effects of drought.

Oregon.—Roseburg, 3d: crops in this locality are suffering from drought.

South Carolina.—Darlington, Darlington county, 27th: the drought began in this part of the state about the 2d or 3d of July, but up to this date the crops have not suffered to a great extent. In some sections of Darlington county the drought has already been ended by the recent rains. It is estimated that the crops have not been damaged to a greater extent than twenty-five per cent.

Tennessee.—Chattanooga, 5th: the crops in this locality are suffering from drought. 30th: drought continues.

The following extract is taken from the July report of the Commissioner of Agriculture for the state of Tennessee:

The rainfall during the past month has been rather unevenly distributed. In some localities the extensive rains have greatly injured the crops of wheat, oats, and hay that had been cut, causing the former to sprout, and rendering much of it unmarketable, while in other localities a continuous drought has materially lessened the chances for the growing crops, which were full of sap, and it will require very favorable conditions during the coming month to even partially restore them.

Texas.—Dallas, Dallas county, 2d: the crops in the surrounding country are suffering from the effects of drought, no rain having fallen since June 11th.

Palestine, Anderson county, 28th: the rain of this date proved a great benefit to the crops in this part of the state. No rain had fallen since July 10th, and the crops were suffering seriously.

Virginia.—Lynchburg 31st: the protracted drought has

proved very injurious to the corn crop in this vicinity. During the month of July only 0.19 inch of rain fell, which is 2.74 inches below the July average, and only about one-fifteenth of the average July rainfall for the last eleven years at this place.

FOREST AND PRAIRIE FIRES.

Portland, Oregon, 9th: extensive forest fires are reported from the Tillamook country and along the lower Columbia river, while, in this locality, the fires have been in progress for two weeks. It is not possible to estimate the damage of these conflagrations, but it is considered that it will exceed one million dollars. Much of the timber destroyed was on Government lands. Unusually the frequent summer rains keep the forests in this state comparatively damp, but the recent long-continued dry weather has so dried the evergreen fir trees that they burn like tinder. Large quantities of valuable cedar lumber have been destroyed. An extensive logging camp near Oak Point has sustained damage estimated at \$100,000. In that locality the fire raged to such an extent that it could not be approached and, therefore, no estimate of the total damage could be made. These fires were the most destructive ever known to have prevailed in Oregon or Washington Territory. No lives were reported lost.

Albany, Oregon, 31st: forest fires in both the Coast and Cascade mountain ranges have made the atmosphere very smoky throughout the month, with the exception of a few days while the wind was from the west.

Prairie and forest fires have also been reported from the following stations:

Fort Buford, Dakota: 24th and 25th.

Fort Supply, Indian Territory: 20th and 21st.

Coeur d'Alene, Washington Territory: 15th, 19th, and 31st.

Spokane, Washington Territory: 28th and 31st.

Dayton, Washington Territory: 9th and 18th.

Roseburg, Oregon: 2d to 10th, and 16th to 22d.

POLAR BANDS.

Polar bands have been observed on the various dates as follows:

1st.—Lead Hill, Arkansas.

2d.—Los Angeles, California.

5th.—Salina, Kansas.

8th.—Nebraska City, Nebraska.

10th.—Los Angeles, California.

15th.—Memphis, Tennessee.

16th.—Lead Hill, Arkansas.

18th.—Augusta, Georgia.

20th.—Marion, Virginia.

21st.—Lead Hill, Arkansas.

22d.—Pensacola, Florida; Lead Hill, Arkansas.

23d.—Yates Centre, Kansas.

24th.—Lead Hill, Arkansas.

26th.—Toledo, Ohio; Los Angeles, California.

28th.—Lead Hill, Arkansas.

29th.—Nashville, Tennessee.

30th.—Wytheville, Virginia.

31st.—Morrison, Illinois.

INSECTS.

Portland, Maine, 10th.—Reports from Lewiston state that a species of wingless grass-hopper has appeared in that locality and has done a large amount of damage to the crops.

Erie, Pennsylvania, 13th.—A swarm of locusts appeared in Chautauqua county, New York, and is moving westward along the shore, destroying all vegetation before it.

Lancaster, Pennsylvania, 16th.—The army worm has made its appearance in large numbers in the northern part of this (Lancaster) county, and is doing much damage to the tobacco fields.

Montgomery, Alabama, 20th.—The cotton worm is reported very generally in this section.

SAND STORMS.

Fort Concho, Texas, 2d, 3d.

Coleman City, Texas, 2d.

Camp Thomas, Arizona, 3d.
Yuma, Arizona, 3d.
Fort Yates, Dakota, 13th.

ZODIACAL LIGHT.

Pensacola, Florida, 5th.
Elk Falls, Kansas, 18th.
Nashville, Tennessee, 22d, 23d, 26th, 29th.
Northport, Michigan, 31st.

NOTES AND EXTRACTS.

The following meteorological summary and table are taken from the July report of the "Tennessee Weather Service":

SUMMARY.

Mean temperature, 74°.

Highest temperature, 98°, on the 27th at Grief.
Lowest temperature, 56°, on the 10th at Andersonville and Beech Grove.
Range of temperature, 42°.
Mean daily range of temperature, 14°.
Greatest daily range of temperature, 31°, on the 2d at Andersonville, and on the 20th at Grief.
Least daily ranges of temperature, 0°, on the 7th at Smithville; 1° on the 4th and 6th at Milan; on the 14th at Riddleton; and on the 15th and 30th at McMinnville.
Mean depth of rain, 3.88 inches.
Greatest depth of rain, 6.99 inches at Gadsden.
Least depth of rain, 1.20 inches at Grandview.
Average number of clear days, 9½.
Average number of fair days, 11.
Average number of cloudy days, 10½.
Average number of days on which rain fell, 9½.
Prevailing direction of wind, southwest.

Abstract of meteorological observations for the month of July, 1883, as reported to the Bureau of Agriculture, &c., of Tennessee, by voluntary observers in co-operation with General W. B. Hazen, Chief Signal Officer, U. S. A.

County.	Station.	Latitude north.	Longitude west of Washington.	Temperature.					Wind.				Number of days—											On which rain fell, including hail, snow, and sleet.	Total rainfall, including hail, snow, and sleet (in inches).	Observers.		
				Mean of 7 a. m.	Mean of 2 p. m.	Mean of 9 p. m.	Average monthly.	Highest.	Lowest.	Date.	Prevailing direction.	Greatest force.	Scale o 10.	Date.	Clear.	Fair.	Cloudy.	Auroras.	Dew.	Fog.	Frost.	Lunar halos.	Solar halos.				Hail storms.	Thunder storms.
Anderson	Andersonville	36 15	86 58	66	82	74	74	96	22	56	10	n.	br.	22	1	20	9		3	5				1	8	3.06	J. K. P. Wallace, 30d.	
Bedford	Flat Creek	35 30	9 40	73	84	73	77	90	3	62	10	n.w.	br.	24	10	11	10		18	4				14	14	4.20	William Hart.	
Blount	Maryville, 960 ft.	35 45	7 06	72	78	70	70	96	5	66	11	w.	br.	15	9	12	10							6	6	2.95	W. H. Henry.	
Bradley	Grief	35 11	84 42	74	80	74	79	98	27	62	31	n.	br.	7	3	21	7			2				6	6	1.81	J. T. Cowden.	
Campbell	Caryville	36 00	7 30	70	82	69	73	90	22	60	11	se.	br.	13	3	16	12			4					6	1.42	Fletcher Smith.	
Carroll	Huntingdon	36 00	11 20	74	82	74	77	90	24	62	31	sw.	h.	6	8	15	8		23				1	10	6.35	A. W. Hawkins.		
Carroll	McKenzie, 815 ft.	36 10	11 30	78	89	79	82	96	4	68	30	sw.	br.	4	14	14	3		12	1				2	12	4.77	John Brown.	
Cheatham	Kingston Springs	36 10	10 04	72	86	77	78	90	3	60	10	s.	br.	8	13	11	7		13	9				3	10	5.10	W. J. Inman.	
Coffee	Manchester	35 20	9 04	71	79	72	74	91	3	68	30	n.w.	h.	5	4	18	9								8	4.21	Wiley Hickerson.	
Coffee	Beech Grove, 1,050 ft.	35 30	9 06	65	82	72	73	90	22	56	10	n.w.	br.	8	18	1	12		21				12	14	3.35	B. F. Cheatham.		
Cumberland	Grassy Cove	36 00	8 00	54	77	68	64	88	22	57	10	s.	l.		16	4	10		17	15		3		10	15	2.10	Nettie M. Stratton.	
Crockett	Gadsden	35 45	12 00	72	83	73	76	91	24	62	10	w.	h.	12	11	13	7								14	6.99	M. T. Moore.	
DeKalb	Smithville (near)	35 00	8 40	71	82	72	75	88	22	64	9	sw.	l.	23	9	10	9		14			1		3	9	2.60	P. C. Blum, (29d's.)	
Dickson	White Bluff	36 10	10 04	75	85	75	78	95	22	60	30	s.	h.	11	13	7	11		10	4				4	11	5.80	Prof. W. G. McMillan.	
Dyer	Dyersburg	36 15	12 20	72	83	74	76	91	2	64	31	s.	h.	12	3	11	17		23	5				4	9	0.45	L. Hughes.	
Gibson	Trenton, 450 feet.	35 58	11 58	71	82	73	75	90	25	61	31	sw.	h.	7	12	7	15		22	5			1	12	11	11	5.56	A. S. Curroy.
Gibson	Milan, 440 ft.	35 55	11 40	70	83	73	75	95	24	59	10	s.	h.	8	12	13	6		23						10	11	5.56	M. D. L. Jordan, M.D.
Giles	Pulaski	35 15	10 00	75	85	85	82	92	23	65	10	sw.	h.	24	16	7	8		3						6	6	2.30	Prof. W. T. Mann.
Greene	Greeneville	36 10	7 49	75	86	77	79	90	24	67	12	sw.	h.	24	16	7	8		3						6	6	2.30	E. Link.
Hawkins	Rogersville	36 22	5 57	70	82	70	74	89	23	63	10	sw.	h.	6	15	10	10		29	1		1		3	12	3.15	Thos. F. Walker.	
Hardeman	Bolivar	35 18	12 00	72	84	75	77	91	21	65	31	s.	h.	20	6	5	5								10	0.44	E. P. McNeal.	
Hardin	Savannah	35 20	11 40	70	84	73	70	90	24	61	10	w.	h.	6	12	19	6		19	2		1		2	5	4.31	H. R. Hinkle.	
Haywood	Brownsville	35 36	12 20				79	99	22	61	10	w.	h.	20											7	4.80	Daniel Bond.	
Henry	Paris	36 33	11 25	74	83	74	77	90	7	65	30	w.	h.	13	7	9	15								9	4.90	J. J. Travis.	
Humphreys	Waverly	36 00	10 40	70	81	80	77	89	12	60	10	sw.	h.	24	5	11	15			2				2	8	5.08	D. R. Owen.	
Lincoln	Howell	35 15	9 30	71	83	69	74	90	21	63	11	s.	br.	8	1	12	18			6					15	1.73	O. R. Hatcher, M.D.	
McNairy	McNairy Station	35 00	12 00	75	85	73	78	93	23	65	19	s.	h.	24	15	11	5								8	4.25	J. H. Blakely.	
Montgomery	Sailor's Rest	36 24	10 35									sw.	h.	1	14	16			8						8	2.66	John Minor.	
Overton	Livingston, 966 ft.	36 23	8 17	73	81	70	75	88	23	61	9	sw.	h.	12	18	2	11								8	3.63	J. A. Laughlin.	
Obion	Troy	36 20	12 10									sw.	h.	12	18	2	11								8	5.70	W. H. Caldwell.	
Polk	Benton, 880 ft.	35 10	7 45	75	86	77	80	97	22	64	30	sw.	h.	7	9	10	10		8	2				11	8	1.83	Joe Hood.	
Rutherford	Murfreesboro'	35 50	9 25	72	83	73	76	91	3	63	10	sw.	br.	7	1	4	10					1	1	9	11	2.84	H. H. Chayton, (15d's.)	
Rutherford	Florence Station	35 53	9 26	72	87	73	77	95	24	63	10	n.w.	br.	12	13	11	7								9	2.58	C. F. Vandeford.	
Rhea	Grand View, 1,635 ft.	35 45	7 48	69	82	67	74	94	20	49	11	sw.	h.	7	18	12	15		29	3		2		2	7	1.20	Hattie R. Stratton.	
Smith	Riddleton, 548 feet.	36 19	9 07	70	82	72	74	91	21	57	19	sw.	h.	16	2	15	14		25	11		4	2	3	11	3.65	S. P. Ferguson.	
Smith	Alexandria (near)	35 30	8 56	77		74	75	91	22	65	30	s.	l.		2	18	11			2					12	4.59	Irenus Beckwith.	
Tipton	Covington	35 20	12 38	72	86	72	77	93	21	61	10	s.	br.	10	24	10	9		23					5	8	3.34	T. W. Roane, M.D.	
Williamson	Franklin	35 50	9 48	70	82	73	75	89	3	68	30	n.	h.	16	5	6	17		11	2				5	10	3.88	Samuel Henderson.	
Warren	McMinnville	35 45	8 45	73	81	77	77	93	22	66	10	n.	h.	17	11	8	12			2		1		1	8	3.85	R. M. Reams.	

The "Iowa Weather Service," under direction of Dr. Gustavus Hinrichs, has forwarded the following advance proof of the July report of that service:

The weather of July, 1883, was very favorable to the crops, being fair, nearly normal in temperature, with an excess of rainfall, and southerly winds prevailing.

The mean temperature of the air was but a little over one degree below normal; last year July was nearly five degrees below normal. The number of hot days has been high, especially during the first and last decade, while the middle decade was cool.

Insolation has been high, because, even during the stormy period, cloudy days were rare, and during the month clear days were numerous. The sun thermometer exceeded one hundred and forty degrees on twenty-one days; its highest reading was one hundred and sixty-one degrees on the 23d.

The total rainfall was below normal in southern central Iowa, from Union to Jasper counties; in the balance of the State it was considerably above normal, averaging about six inches in the northwest and in the southeast, and nine inches in the northeast. The highest rainfall, of fourteen inches,

for the month, was measured at Decorah. The number of rain days averaged ten for the east and northwest, and about six for the balance of the State.

As usual during July, very heavy rains have occurred, but only in the north. The highest rainfall measured on one day was nearly six inches, at Homedale, south of Sibley, in Osceola county, on the 23d; next to this stands Algona, Kossouth county, with over five inches on the same date. But the most notable rain period of the month occurred in northeastern Iowa, from the 20th to the 23d inclusive, giving very nearly ten inches of rain in Howard and Winneshiek counties.

No tornadoes have occurred in Iowa, but several squalls have visited parts of Iowa; yet the most destructive of these storms have but touched Iowa. The squall of the 4th started about 5 p. m. in central Iowa, and reached southeastern Iowa about 9 p. m.; it was not very severe. The squall of the 12th started about 6 p. m. in Black Hawk county, reached the Mississippi in Scott and Clinton counties about 9 p. m., doing much damage by wind and hail; it continued to spread over central Illinois till about 11 p. m. About noon on the 13th another very severe squall started from southwestern Iowa, where considerable damage was done in Fremont and Page counties; the storm increased in fury while spreading over northwestern Missouri till about